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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,038

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Heather D. Maynard

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EXAMINER

HEINCER, LIAM J

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

02/18/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/576,038

Applicant(s)

MAYNARD ET AL.

Examiner

Liam J. Heincer

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-20 and 24-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-19 is/are allowed.
- 6) ☒ Claim(s) 20 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The original specification does not provide support for (ethylene glycol) methyl ether methacrylate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gololobov et al. (US Pat. 6,433,078) in view of Matyjaszewski et al. (US 5,789,487).

Considering Claim 20: Gololobov et al. teaches a polymer-enzyme/protein conjugate (4:19-23) comprising reacting a monomer (4:45-21) with sites on the enzyme modified to include reactive sites (4:36-43). While Gololobov et al. teaches that some of the enzymes can crosslink, the crosslinked enzymes are removed from the reaction medium (Example 6). Therefore the process results in conjugates containing only one enzyme.

Gololobov et al. does not teach the modified polymerization site as being an initiator. However, Matyjaszewski et al. teaches an atom transfer radical polymerization initiator that is preferably a bromoisobutyrate initiator (10:11-35) as being attached to a macromolecule (17:25-59). Gololobov et al. and Matyjaszewski et al. are combinable as they are concerned with a similar technical difficulty, namely grafting acrylate monomers onto a macromolecule. It would have been obvious to a person having

ordinary skill in the art at the time of invention to have used the initiator of Matyjaszewski et al. as the polymerization site of Gololobov et al., and the motivation to do so would have been, as Matyjaszewski et al. suggests, atom transfer radical polymerization has a uniform growth on all chains (4:60-5:9).

Considering Claim 26: Gololobov et al. teaches the monomer as being N-isopropylacrylamide.

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gololobov et al. (US Pat. 6,433,078) in view of Matyjaszewski et al. (US 5,789,487) as applied to claim 20 above, and further in view of Hoffman et al. (US Pat. 5,998,588). Considering Claims 24 and 25: Gololobov et al. and Matyjaszewski et al. collectively teach the conjugate of claim 20 as shown above.

Gololobov et al. does not teach attaching the initiator through a biotin-streptavidin interaction. However, Hoffman et al. teaches using a biotin-streptavidin interaction to conjugate a polymer to a protein (14:6-24). Gololobov et al. and Hoffman et al. are analogous art as they are concerned with the same field of endeavor, namely polymer-protein conjugates. It would have been obvious to a person having ordinary skill in the art at the time of invention to have used a biotin-streptavidin interaction to conjugate the initiator and protein of Gololobov et al., and the motivation to do so would have been, as Hoffman et al. suggests, streptavidin and biotin form a strong interaction (14:6-24).

Allowable Subject Matter

Claims 15-19 are allowed.

Claim 27 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not teach or suggest the claimed protein-polymer conjugate. As shown above, the combination of Gololobov et al. and Matyjaszewski et

al. teaches a conjugate as described in claim 20. However, there is nothing in the prior art of record to teach or suggest using the claimed (ethylene glycol) methyl ether methacrylate monomer as a monomer in the polymer formation.

Response to Arguments

Applicant's arguments filed November 9, 2009 have been fully considered but they are not persuasive.

The applicant's argument that the product of claims 20 and 24-27 are the product of the allowed process is not persuasive. The product claims do not contain all the limitations of the process, namely the use of a non-interacting resin initiator. Additionally, an allowable process does not necessarily indicate an allowable product. As the conjugate itself would not be altered by the use of a non-interacting initiator, the allowable process does not indicate an allowable product.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/

Supervisory Patent Examiner, Art Unit 1796

LJH

February 11, 2010